

Date: Sat, 19 Feb 94 04:31:15 PST
From: Ham-Space Mailing List and Newsgroup <ham-space@ucsd.edu>
Errors-To: Ham-Space-Errors@UCSD.Edu
Reply-To: Ham-Space@UCSD.Edu
Precedence: Bulk
Subject: Ham-Space Digest V94 #34
To: Ham-Space

Ham-Space Digest Sat, 19 Feb 94 Volume 94 : Issue 34

Today's Topics:

 * SpaceNews 21-Feb-94 *
 EOSS Balloon Flight In Denver
 It's Official: GPS Anti-spoofing Is Now on Continuously
 ORBS\$049.2L.AMSAT
 WANTED: Circuit to switch out preamp on transmit

Send Replies or notes for publication to: <Ham-Space@UCSD.Edu>
Send subscription requests to: <Ham-Space-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Space Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-space".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: Fri, 18 Feb 1994 12:18:05 MST
From: agate!howland.reston.ans.net!sol.ctr.columbia.edu!newsxfer.itd.umich.edu!
nntp.cs.ubc.ca!alberta!ve6mgs!usenet@ames.arpa
Subject: * SpaceNews 21-Feb-94 *
To: ham-space@ucsd.edu

SB NEWS @ AMSAT \$SPC0221
* SpaceNews 21-Feb-94 *

BID: \$SPC0221

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SpaceNews
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MONDAY FEBRUARY 21, 1994

SpaceNews originates at KD2BD in Wall Township, New Jersey, USA. It is published every week and is made available for unlimited distribution.

* OSCAR SKN BEST FISTS *

=====

Many thanks to all who participated in our 22nd Annual Straight Key Night on OSCAR, 1 January 1994. The following "Best Fist" nominations have been received: W1NU, WQ3Y and W6HDO. Although we didn't ask that logs be submitted, several participants also reported working AMSAT-NA's esteemed president, W3X0/5, in one of Bill's rare appearances on CW (PVRC members especially will appreciate the significance of this occasion). An "honorary" Best Fist nomination goes to you, Bill; let's hope that more SSB ops will follow your fine example, dust off their old pump handles, and enjoy the fun.

See you all next year!

[Info via Ray, W2RS]

* STS-62 PRE-LAUNCH ORBITAL DAT

=====

STS-62

1	00062U	94062.63664409	.00073440	00000-0	22129-3	0	29	
2	00062	39.0115	247.8629	0006644	298.2691	61.7477	15.90695888	27

Satellite: STS-62

Catalog number: 00062

Epoch time: 94062.63664409 = (03 MAR 94 15:16:46.05 UTC)

Element set: 002

Inclination: 39.0115 deg

RA of node: 247.8629 deg

Space Shuttle Flight STS-62

Eccentricity: .0006644

Prelaunch Element set JSC-002

Arg of perigee: 298.2691 deg

Launch: 03 MAR 94 13:54 UTC

Mean anomaly: 61.7477 deg

Mean motion: 15.90695888 rev/day

G. L. Carman

Decay rate: 7.3440e-04 rev/day^2

NASA Johnson Space Center

Epoch rev: 2

Checksum: 310

[Info via Gil Carman]

* OSCAR-13 ZRO TEST SKED *

=====

The ZRO Memorial Technical Achievement Award Program, or just "ZRO Test" has a new schedule for February and March, 1994, via AMSAT-OSCAR-13. This activity is a test of operating skill and equipment performance.

During a typical ZRO run, a control station will send numeric code groups using CW at 10 words-per-minute. At the beginning of the run, uplink power from the control station is set to match the general beacon downlink strength. This is level "zero". The control operator will send and repeat a random five-digit number, then lower his uplink power by 3 dB (half power) and repeat the procedure with a new random number (level "1"). This will continue to a level 30 dB below the beacon (level "A").

A participating listener monitors the downlink signals till he can no longer copy the numbers. Those who can hear the beacon will qualify for the basic award by copying the code group heard at level "zero". The challenge is to improve home-station performance to a point where the lower-level downlink signals can be copied (levels 6 through A). To date, only one station (Darrel Emerson, AA7FV) has successfully copied level "A".

The following schedule of Mode "B" tests were chosen for convenient operating times and favorable squint angles. The tests can be heard on 145.840 MHz. Andy WA5ZIB will conduct all the tests. Mode "JL" tests will no longer occur due to the failure of AO-13's 70-cm transmitter.

Day	Date (UTC)	Time	Areas covered
Sunday	Feb. 20, 1994	0330 UTC	NA, NW SA, Japan, Pacific
Saturday	Feb. 26, 1994	1930 UTC	NA, SA, Europe, Africa, ME
Saturday	Mar. 19, 1994	1930 UTC	NA, SA, Europe, Africa
Saturday	Mar. 26, 1994	2315 UTC	NA, SA

Note that the dates and days are shown in "UTC", thus the first test listed occurs at 9:30 PM CST
announced as soon as possible via the AMSAT HF and AO-13 Operations Nets.

All listener reports with date of test and numbers copied should be sent to Andy MacAllister WA5ZIB, AMSAT V.P. User Operations, 14714 Knights Way Drive, Houston, TX 77083-5640. A report will be returned verifying the level of accurate reception. An S.A.S.E. is appreciated but not required.

Information about the AMSAT Awards Program can be found on page 197 of the "Proceedings of the AMSAT-NA Tenth Space Symposium" (1992). This paper, covering all the AMSAT-NA awards including specifics on the ZRO Test, was reprinted on page 10 in the March/April 1993 issue of "The AMSAT Journal". The ZRO Test information provided in the article covers test procedures, means for obtaining certificates and gives some historical background about the program. Reprints of the article can be obtained for an S.A.S.E. to WA5ZIB at the address above.

[Info via WA5ZIB]

* DISCOVERY-MIR RADIO LINK *

=====

The Space Shuttle Discovery's crew and the MIR Russian space station made an Amateur Radio contact on 08-Feb-94 during a period of time when Discovery was over the south Pacific and MIR was over the Caribbean.

"We fly during a lot of time with Sergej and I wish a good work with his North American colleagues, and a not problems return to the Earth", said Valery Polyakov one of the MIR cosmonauts. "Thanks, I heard you perfect", replied Krikalev in Russian.

[Info via Gustavo, LW2DTZ of AMSAT-LU]

* AMSAT HF PBBS *

=====

WT0N-3 in St. Paul, MN, USA will be on 10.127 LSB (30 meters) Monday through Saturday from 1600 UTC until 2300 UTC. This station will carry all AMSAT bulletins and Keps. It will also carry other satellite related items such as "SpaceNews". This PBBS will be set up on 300 baud HF packet, but will also be available for AMT to do so. At this time, the PBBS will be set up as an experiment and any comments and suggestions should be directed to the sysop, BJ Arts, WT0N, at any one of the following addresses:

PACKET: WT0N@WB0GDB.#STP.MN.USA.NOAM

INTERNET: BJARTS@STTHOMAS.EDU

[Info via WT0N]

* FO-20 SCHEDULE *

=====

The FO-20 command station announced that a slight malfunction in the onboard command system had been detected. As a result, analog mode operation arranged from 09-Feb-94 will be performed on schedule, but there is a possibility of interruption due to satellite ground station control.

The present schedule is as announced before:

Analog mode:

09-Feb-94 07:15 -to- 16-Feb-94 07:40 UTC

23-Feb-94 08:05 -to- 02-Mar-94 06:40 UTC

09-Mar-94 07:05 -to- 16-Mar-94 07:30 UTC

23-Mar-94 07:52 -to- 30-Mar-94 08:15 UTC

Digital mode: Unless otherwise noted above.

[Info via Kazu Sakamoto, JJ1WTK]

* THANKS! *

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Thanks to all those who sent QSL cards, letters, and messages of appreciation regarding SpaceNews, especially:

N2WPW

EA4RCT

VK4STS

G7MJL

XX9AS

KY0R

* FEEDBACK/INPUT WELCOMED *

=====

Mail to SpaceNews should be directed to the editor (John, KD2BD) via any of the following paths:

FAX : 1-908-747-7107

PACKET : KD2BD @ N2KZH.NJ.USA.NA

INTERNET : kd2bd@ka2qhd.ocpt.ccur.com -or- kd2bd@amsat.org

MAIL : John A. Magliacane, KD2BD
Department of Engineering and Technology
Advanced Technology Center
Brookdale Community College
Lincroft, New Jersey 07738
U.S.A.

<<= SpaceNews: The first amateur newsletter read in space! -=>>

/EX

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John A. Magliacane, KD2BD * /\ * Voice : 1-908-224-2948
Advanced Technology Center |/\| Packet : KD2BD @ N2KZH.NJ.USA.NA
Brookdale Community College |/\| Internet: kd2bd@ka2qhd.ocpt.ccur.com
Lincroft, NJ 07738 * \/\ * Morse : -. -.. ..--- -..

Date: Fri, 18 Feb 1994 22:37:50 GMT
From: cns!rickvg@uunet.uu.net
Subject: EOSS Balloon Flight In Denver
To: ham-space@ucsd.edu

For Followups to this post check the newsgroup rec.radio.amateur.space

Edge of Space Sciences, Inc. (EOSS) is a non-profit organization comprised of individuals interested in the use of high altitude balloon flights to offer an experimental platform for students and other experimenters. The group has a very high level of participation by amateur radio operators, however, this is NOT a requirement for membership and participation.

EOSS has flown 14 successful flights over the past few years. We regularly fly amateur television, and a suite of atmospheric sensors.

Other experimental payloads have included, GPS and LORAN-C for a comparison of their accuracy. Homebrew differential GPS on the same flight. Students of Colorado University at Boulder (CU) created their own differential system using a gps receiver at a KNOWN location, and calculated the offsets themselves, allowing the GPS vs. LORAN-C comparison greater accuracy.

EOSS hosted last year's "National Balloon Symposium" in Denver Colorado. People from more than 10 states, and Canada were in attendance as well as some of the commercial providers of equipment used in our "hobby".

We plan to fly EOSS-15 soon and here is our general information release about this flight. If you have any questions about the flight or EOSS please use email to my address (sig file at bottom).

EOSS-15 FLIGHT PROFILE

LAUNCH SITE:

Thunder Ridge Middle School
Picadilly and Smokey Hill Rd.
Aurora, Colorado, USA

latitude 39.61195 deg North
longitude 104.75050 deg West

(The lat/lon is actually for a location within 1 mile of launch point. I haven't been to the launch site to take an accurate fix yet.)

LAUNCH DATE: February 26,1994

LAUNCH TIME: 1600 UTC (Set up 1400 UTC) Launch time subject to FAA approval

ON-BOARD EXPERIMENT: Conducted by Cherry Creek High School.

PURPOSE: To measure the various levels of alpha, beta, and gamma radiation at

various altitudes.

SHUTTLE FREQUENCIES:

Packet: 144.340

ATV: 426.250

CW Beacon: 147.555

Carries the call of WB4ETT

There will be a HF net run by Sparky\ KA0DPC on 7.232 MHz (phone). And the FOXHUNTER'S will coordinate on the Colorado Repeater Association's repeater 147.225 MHz (+600kHz). This will also be used for some local information during the flight. Thanks in advance to the Colorado Repeater Association for the use of their repeater.

REMARKS: Edge of Space Sciences will provide the platform for Cherry Creek High School and Thunder Ridge Middle School to study the lower atmosphere. Cherry Creek H.S. students have modified a geiger counter to meet the EOSS interface specifications which will measure the alpha, beta, and gamma levels of radiation vs. altitude. The experiment will gather data that should interest local NASA and NOAA officials.

Thunder Ridge M.S. students will make graphs that will help them understand the temperature vs. altitude and balloon dynamics by graphing the ascent and descent rate of the balloon.

The project will be presented at this years Denver, News 4 Education Exposition at the Colorado Convention Center on March 11,12,13 1994. More information about the EXPO can be obtained from EOSS.

Sponsorship for this flight and Education Exposition have been provided by:

Olde Antenna Lab
Dave Clingerman (W6OAL)
4725 W. Quincy
Num 1014
Denver, CO 80236
303-798-5926
303-498-3820

for his:

70 cm ATV Candelabra Antenna

GPS Wheel Antenna

Financial support in Sponsoring EOSS at the KCNC Expo

AT&T

for their:

Financial support in Sponsoring EOSS at the KCNC Expo

SUBMITTED on packet BY: Brian Thomas\NOVSA ground station co-lead
NOVSA@W0GVT.#NECO.CO.USA.NOAM

relayed to internet by:

Rick von Glahn
rickvg@cscns.com -- Internet (preferred)
74620,637 -- Compuserve
N0KKZ@W0GVT.#NECO.CO.USA -- packet radio

Date: 18 Feb 1994 11:14:55 GMT
From: swrinde!cs.utexas.edu!howland.reston.ans.net!news.intercon.com!
news.pipeline.com!malgudi.oar.net!news.ysu.edu!yfn.ysu.edu!ae674@network.ucsd.edu
Subject: It's Official: GPS Anti-spoofing Is Now on Continuously
To: ham-space@ucsd.edu

:Anti spoofing is a system that degrades the GPS fixes of systems that
:are not using the classified military codes for accurate, dynamic
:navigation. i.e. to prevent anyone from using GPS as a means
:of guiding weapons or aiming them.
:Presumably 100 m is greater than the blast radius of a terrorist
:bomb!

I presume this randomizes the timing signals that are sent and received...
I was under the impression that this had been implemented a while ago.
Or is "anti spoofing" a more secure encryption scheme for the military coded
signals?
Having yet to get my hands on a GPS unit, what kind of resolution do the
commercial
units offer and what was there accuracy before the "anti spoofing"/signal jitter
system went into effect?

Date: Fri, 18 Feb 1994 06:43:00 MST
From: agate!howland.reston.ans.net!sol.ctr.columbia.edu!newsxfer.itd.umich.edu!
nntp.cs.ubc.ca!alberta!ve6mgs!usenet@ames.arpa
Subject: ORBS\$049.2L.AMSAT
To: ham-space@ucsd.edu

SB KEPS @ AMSAT \$ORBS-049.N
2Line Orbital Elements 049.AMSAT

HR AMSAT ORBITAL ELEMENTS FOR AMATEUR SAT
FROM WA5QGD FORT WORTH,TX February 18, 1994
BID: \$ORBS-049.N

DECODE 2-LINE ELSETS WIT

1 AAAAAU 00 0 0 BBBB.BBBBBBBB .CCCCCCC 00000-0 00000-0 0 DDDZ
2 AAAAA EEE.EEEE FFF.FFFF GGGGGGG HHH.HHHH III.IIII JJ.JJJJJJJJ KKKKKKZ
KEY: A-CATALOGNUM B-EPOCHTIME C-DECAY D-ELSETNUM E-INCLINATION F-RAAN
G-ECCENTRICITY H-ARGPERIGEE I-MNANOM J-MNMOTION K-ORBITNUM Z-CHECKSUM

TO ALL RADIO AMATEURS BT

AO-10

1 14129U 83058B 94041.03785160 -.00000138 00000-0 10000-3 0 2618
2 14129 27.2065 342.3641 6022608 153.3557 257.8051 2.05878353 80161

UO-11

1 14781U 84021B 94044.54889300 .00000363 00000-0 69607-4 0 6647
2 14781 97.7907 65.0254 0011279 310.7761 49.2455 14.69144313532150

RS-10/11

1 18129U 87054 A 94047.04020088 .00000024 00000-0 26346-4 0 8632
2 18129 082.9204 058.3872 0011757 005.5029 354.6799 13.72331248333290

AO-13

1 19216U 88051 B 94046.66135778 .00002242 00000-0 12555 0 0 8791
2 19216 057.8129 267.9831 7205073 334.9717 002.9154 02.09729204 43460

FO-20

1 20480U 90013C 94046.42832899 -.00000014 00000-0 49346-4 0 6594
2 20480 99.0216 221.3367 0539917 255.4010 98.6634 12.83223845188515

AO-21

1 21087U 91006A 94044.50409244 .00000094 00000-0 82657-4 0 4241
2 21087 82.9374 234.2226 0036823 68.1133 292.3931 13.74534088152592

RS-12/13

1 21089U 91007A 94044.66379265 .00000043 00000-0 29527-4 0 6625
2 21089 82.9220 103.0678 0030946 91.8517 268.6203 13.74034946151682

ARSENE

1 22654U 93031B 93338.80803910 -.00000087 00000-0 00000 0 0 2437
2 22654 1.4104 113.5274 2936576 161.9838 210.8642 1.42202044 2990

UO-14

1 20437U 90005B 94046.18347456 .00000060 00000-0 40471-4 0 9649
2 20437 98.5953 132.5942 0010599 186.2827 173.8225 14.29823413212157

AO-16

1 20439U 90005D 94045.75388848 .00000076 00000-0 46533-4 0 7643
2 20439 98.6038 133.2765 0010934 188.0238 172.0765 14.29879034212109

DO-17

1 20440U 90005E 94045.23034447 .00000070 00000-0 44132-4 0 7637
2 20440 98.6058 133.0443 0010965 189.4352 170.6623 14.30017107212047

WO-18

1 20441U 90005F 94045.76328214 .00000059 00000-0 39826-4 0 7657
2 20441 98.6054 133.5798 0011505 188.3662 171.7330 14.29993172212124

LO-19

1 20442U 90005G 94045.74960276 .000000064 00000-0 41740-4 0 7638
2 20442 98.6048 133.7927 0011921 187.6862 172.4137 14.30087334212130

UO-22

1 21575U 91050B 94046.13690949 .000000113 00000-0 52716-4 0 4657
2 21575 98.4466 123.0432 0007219 301.1937 58.8542 14.36890610135556

KO-23

1 22077U 92052B 94046.40390865 -.000000037 00000-0 10000-3 0 3601
2 22077 66.0810 174.9628 0009874 317.5713 42.4539 12.86284764 71129

AO-27

1 22825U 93061C 94046.21545311 .000000058 00000-0 41460-4 0 2617
2 22825 98.6626 123.1936 0008062 202.2052 157.8775 14.27607193 20284

IO-26

1 22826U 93061D 94042.21058899 .000000053 00000-0 39268-4 0 2612
2 22826 98.6649 119.2441 0008529 216.1988 143.8612 14.27708814 19710

KO-25

1 22830U 93061H 94045.75293537 .000000053 00000-0 38624-4 0 2647
2 22830 98.5674 121.3071 0011406 172.0390 188.0975 14.28033386 20227

NOAA-9

1 15427U 84123 A 94048.05740928 .000000108 00000-0 57386-4 0 7177
2 15427 099.0629 097.0472 0014834 198.2531 161.8614 14.13588676473374

NOAA-10

1 16969U 86073 A 94048.07887430 .000000192 00000-0 82625-4 0 6151
2 16969 098.5086 060.7353 0013148 322.0632 038.0209 14.24865197385508

MET-2/17

1 18820U 88005A 94046.33979358 .000000030 00000-0 12997-4 0 2628
2 18820 82.5401 5.5070 0016642 157.5160 202.6730 13.84706663305497

MET-3/2

1 19336U 88064A 94039.99790931 .000000051 00000-0 10000-3 0 2623
2 19336 82.5380 54.3969 0015730 222.0779 137.9138 13.16964807266383

NOAA-11

1 19531U 88089 A 94046.98300494 -.000000096 00000-0 00000 0 0 5218
2 19531 099.1592 032.9867 0011924 112.3219 247.9779 14.12958217278100

MET-2/18

1 19851U 89018A 94044.55769401 .000000107 00000-0 82803-4 0 2624
2 19851 82.5198 242.4732 0011047 225.2162 134.8075 13.84359023250582

MET-3/3

1 20305U 89086A 94046.12070456 .000000044 00000-0 10000-3 0 9878
2 20305 82.5552 354.3730 0006056 241.9787 118.0703 13.04413574206986

MET-2/19

1 20670U 90057A 94040.79306496 .000000024 00000-0 79036-5 0 7621
2 20670 82.5504 309.6649 0016176 139.0978 221.1403 13.84188455182995

FY-1/2

1 20788U 90081A 94046.23594868 -.000000254 00000-0 -14043-3 0 8921
2 20788 98.8422 70.2522 0014658 354.4648 5.6337 14.01322369176623

MET-2/20

1 20826U 90086A 94045.22593445 .000000017 00000-0 15837-5 0 7622
2 20826 82.5209 243.8029 0014675 36.2160 323.9979 13.83572388170755

MET-3/4

1 21232U 91030A 94044.59202931 .000000051 00000-0 10000-3 0 6701
2 21232 82.5391 256.9674 0013673 130.9218 229.3059 13.16460015135098

NOAA-12

1 21263U 91032A 94039.95700562 .000000136 00000-0 80464-4 0 9196
2 21263 98.6320 70.4809 0012014 247.6730 112.3172 14.22366100142301

MET-3/5

1 21655U 91056A 94046.41312719 .000000051 00000-0 10000-3 0 6673
2 21655 82.5533 202.7275 0013636 137.2394 222.9769 13.16827457120431

MET-2/21

1 22782U 93055 A 94047.11395079 .000000069 00000-0 63374-4 0 2638
2 22782 082.5509 302.3850 0021878 203.9744 156.0899 13.83000458023351

POSAT

1 22829U 93061G 94045.75585944 .000000072 00000-0 46760-4 0 2541
2 22829 98.6608 122.7699 0009759 191.0097 169.0872 14.28003980 20229

MIR

1 16609U 86017 A 94048.08346927 .00010503 00000-0 12582-3 0 1406
2 16609 051.6194 068.8223 0005218 334.0639 026.0757 15.60261716457315

HUBBLE

1 20580U 90037B 94045.21686181 .00001057 00000-0 90647-4 0 4379
2 20580 28.4690 305.8162 0006080 238.3563 121.6440 14.90475490 11020

GRO

1 21225U 91027B 94045.19676059 .000004645 00000-0 10629-3 0 661
2 21225 28.4619 5.5021 0003857 262.4247 97.5914 15.40075712 37958

UARS

1 21701U 91063B 94043.59286458 .000004144 00000-0 38419-3 0 4780
2 21701 56.9850 298.3343 0004571 105.6879 254.4667 14.96334686132281

/EX

Date: Thu, 17 Feb 1994 15:58:21 GMT

From: ucsnews!sol.ctr.columbia.edu!math.ohio-state.edu!cs.utexas.edu!swrinde!
sgiblab!pacbell.com!att-out!cbnewsj!dquaglia@network.ucsd.edu

Subject: WANTED: Circuit to switch out preamp on transmit

To: ham-space@ucsd.edu

I'm looking for a circuit that will detect the presence of RF and switch out a preamp. I only have a transceiver and I would like to put the preamp on the mast, but I know the preamp will get fried unless I put some sort of protection on it. I've heard there is a simple way to do this with PIN diodes, but I can't find any references to this in any of my usual sources. Any help is appreciated.

Replies to dquaglia@cbnewsj.cb.att.com or dquagliana@attmail.com.

Douglas Quagliana KA2UPW
dquaglia@cbnewsj.cb.att.com

End of Ham-Space Digest V94 #34
